

I. Amendments to the Claims

This listing of claims replaces without prejudice all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended) Apparatus for recognizing free-field audio signals, comprising:

a hand-held device having a microphone to capture free-field audio signals, the captured free field audio signals corresponding to a portion of a recorded audio work that is less than an entire recorded audio work;

a local processor, coupleable to said hand-held device, to transmit audio signal features corresponding to the captured free-field audio signals to a recognition site;

one of said hand-held device and said local processor including circuitry which extracts a time series of spectrally distinct audio signal features from any portion of the captured free-field audio signals, the time series of spectrally distinct audio signal features corresponding to the portion of a recorded audio work that is less than the entire recorded audio work; and

a recognition processor and a recognition memory at the recognition site, said recognition memory storing data corresponding to a plurality of audio templates, said

recognition processor correlating the audio signal features transmitted from said local processor with at least one of the audio templates stored in said recognition processor memory, said recognition processor providing a recognition signal based on the correlation.

Claim 2 (Original) Apparatus according to Claim 1, wherein said hand-held device includes:

an analog-to-digital converter which digitizes the captured free-field audio signals; and

a processor which extracts the time series of spectrally distinct audio signal features from the captured free-field audio signals.

Claim 3 (Original) Apparatus according to Claim 1, wherein said local processor extracts the time series of spectrally distinct audio signal features from the captured free-field audio signals.

Claim 4 (Original) Apparatus according to Claim 1, wherein said local processor comprises a personal computer coupled to the Internet.

Claim 5 (Currently Amended) Apparatus according to Claim 1, wherein said recognition processor memory stores a

plurality of audio templates, each template corresponding to substantially an entire recorded audio work.

Claim 6 (Currently Amended) Apparatus according to Claim 5, wherein said hand-held device has a memory which stores free-field audio signals which correspond to less than an entire recorded audio work.

Claim 7 (Currently Amended) Apparatus according to Claim 6, wherein the entire recorded audio work comprises a song.

Claim 8 (Original) Apparatus according to Claim 1, wherein said recognition processor, in response to the recognition signal, transmits at least a portion of the at least one template stored in said recognition processor memory to said local processor for verification.

Claim 9 (Original) Apparatus according to Claim 1, wherein said recognition processor mathematically correlates the audio signal features transmitted from said local processor with the at least one of the audio templates stored in said recognition processor memory.

Claim 10 (Currently Amended) A hand-held device for capturing audio signals which correspond to a portion of a recorded audio work that is less than the entire recorded audio work, and providing ~~to be transmitted from a network computer~~

to a recognition processor site, ~~the recognition site having a processor which receives~~ extracted feature signals that correspond to the captured audio signals, the recognition processor comparing the received extracted feature signals and compares them to a plurality of stored audio works song information, the hand-held device comprising:

a microphone configured to receive ~~receiving~~ analog audio signals which correspond to the portion of the recorded audio work that is less than the entire recorded audio work;

an A/D converter configured to convert ~~converting~~ the received analog audio signals to digital audio signals which correspond to the portion of the recorded audio work that is less than the entire recorded audio work;

a signal processor configured to extract a plurality of ~~extracting~~ spectrally distinct feature signals from any random portion of the digital audio signals, the extracted feature signals corresponding to the portion of the recorded audio work that is less than the entire recorded audio work;

a memory configured to store ~~storing~~ the extracted feature signals; and

~~a terminal transmitting~~ output circuitry configured to output the stored extracted feature signals from said hand-held device ~~to the network computer.~~

Claim 11 (Currently Amended) A device according to

Claim 10, wherein said A/D converter includes further
~~comprising~~ an anti-aliasing filter for filtering the received
analog audio signals.

Claim 12 (Original) A device according to Claim 10,
wherein said memory comprises a flash memory.

Claim 13 (Original) A device according to Claim 10,
wherein said signal processor extracts a time series of signals
corresponding to energy in a plurality of different frequency
bands of the digital audio signals.

Claim 14 (Original) A device according to Claim 10,
wherein said signal processor compresses the extracted feature
signals, and wherein said memory stores the compressed signals.

Claim 15 (Original) A device according to Claim 10,
wherein said hand-held device comprises a cellular telephone.

Claim 16 (Original) A device according to Claim 10,
wherein said hand-held device comprises a portable device
assistant.

Claim 17 (Original) A device according to Claim 10,
wherein said hand-held device comprises a radio receiver.

Claim 18 (Currently Amended) A local processor for an audio signal recognition system having a hand-held device and a recognition server, the hand-held device capturing audio signals and downloading them to the local processor, the recognition server (i) receiving from the local processor extracted feature signals that correspond to the captured audio signals and (ii) comparing received extracted feature signals to a plurality of stored recorded entire audio works song information, the local processor comprising:

an interface for receiving the captured audio signals from the hand-held device, the captured audio signals corresponding to a portion of a recorded audio work that is less than the entire recorded audio work;

a processor for forming extracted feature signals corresponding to the received captured audio signals, the extracted feature signals corresponding to the portion of the recorded audio work that is less than the entire recorded audio work, the extracted feature signals also corresponding to different frequency bands of the captured audio signals;

a memory for storing the extracted feature signals;
and

an activation device which causes the stored extracted feature signals to be sent to the recognition server.

Claim 19 (Original) A processor according to Claim 18, further comprising audio structure for playing back to a user a verification signal received from the recognition server, the verification signal corresponding to the captured audio signal.

Claim 20 (Cancelled)

Claim 21 (Original) A processor according to Claim 18, wherein the local processor sends the extracted feature signals to the recognition server over the Internet.

Claim 22 (Currently Amended) A recognition server for an audio signal recognition system having a hand-held device and a local processor, the hand-held device capturing audio signals and transmitting to the local processor signals which correspond to the captured audio signals, the local processor transmitting extracted feature signals to the recognition server, the recognition server comprising:

an interface receiving the extracted feature signals from the local ~~server~~ processor, the extracted feature signals corresponding to a portion of a recorded audio work that is less than the entire recorded audio work;

a memory storing a plurality of feature signal sets, each set corresponding to an entire recorded audio work; and

processing circuitry which (i) receives an input audio stream and separates the received audio stream into a plurality of different frequency bands; (ii) forms a plurality of feature time series waveforms which correspond to spectrally distinct portions of the received input audio stream; (iii) stores in the memory the plurality of feature signal sets which correspond to the feature time series waveforms, (iv) compares the ~~received~~ extracted feature signals received by said interface with the stored feature signal sets, and (v) provides a recognition signal when the received extracted feature signals match at least one of the stored feature signal sets.

Claim 23 (Original) A server according to Claim 22, wherein said processing circuitry also (i) forms multiple feature streams from the plurality of feature time series waveforms; (ii) forms overlapping time intervals of the multiple feature streams; (iii) estimates the distinctiveness of each feature in each time interval; (iv) rank-orders the features according to their distinctiveness; (v) transforms the feature time series to obtain the complex spectra; and (viii) stores the feature complex spectra in the memory as the feature signal sets.

Claim 24 (Cancelled)

Claim 25 (Original) A server according to Claim 22, wherein said interface is coupled to the Internet.

Claim 26 (Currently Amended) A server according to Claim 22, wherein said ~~processor~~ processing circuitry forwards to the local processor, verification audio signals which correspond to the matched at least one stored feature signal sets.

Claim 27 (Currently Amended) A server according to Claim 22, wherein said ~~processor~~ processing circuitry forwards to the local processor, signals which correspond to the matched at least one stored feature signal sets.

Claims 28-31 (Cancelled)

Claim 32 (Currently Amended) A method for recognizing an input audio data stream, ~~comprises~~ comprising the steps of:

receiving the input audio data stream with a hand held device;

with the hand held device, randomly selecting any one portion of the received audio data stream, the one portion of the received audio data stream comprising a portion of a recorded audio work that is less than the entire recorded audio

work;

forming a first plurality of feature time series waveforms corresponding to spectrally distinct portions of the received audio data stream;

transmitting to a recognition site the first plurality of feature time series waveforms;

storing a second plurality of feature time series waveforms at the recognition site, the second plurality of feature time series waveforms corresponding to the entire recorded audio work;

at the recognition site, correlating the first plurality of feature time series waveforms with the second plurality of feature time series waveforms; and

designating a recognition when a correlation probability value between the first plurality of feature time series waveforms and one of the second plurality of feature time series waveforms reaches a predetermined value.

Claim 33 (Currently Amended) A method for recognizing free-field audio signals, comprising the steps of:

capturing free-field audio signals with a hand-held device having a microphone, the captured free-field audio signals corresponding to a portion of a recorded audio work that is less than an entire recorded audio work;

transmitting signals corresponding to the captured free-field audio signals to a local processor;

transmitting from the local processor to a recognition site, audio signal features which correspond to the signals transmitted from the hand-held device and correspond to the portion of a recorded audio work that is less than an entire recorded audio work;

one of the hand-held device and the local processor extracting a time series of spectrally distinct audio signal features from the captured free-field audio signals;

storing data corresponding to a plurality of audio templates in a memory at the recognition site, each audio template corresponding to substantially an entire recorded audio work;

correlating the audio signal features transmitted from the local processor with at least one of the audio templates stored in the recognition site memory, using a recognition processor; and

providing a recognition signal based on the correlation.

Claim 34 (Original) A method according to Claim 33, wherein said capturing step includes the steps of:

analog-to-digital converting the captured free-field audio signals; and

extracting the time series of spectrally distinct audio signal features from the captured free-field audio signals.

Claim 35 (Original) A method according to Claim 33, wherein said local processor extracts the time series of spectrally distinct audio signal features from the captured free-field audio signals.

Claim 36 (Original) A method according to Claim 33, wherein said local processor comprises a personal computer coupled to the Internet.

Claim 37 (Cancelled)

Claim 38 (Currently Amended) A method according to Claim 33, further comprising the step of storing, in a the hand-held device memory, free-field audio signals which correspond to less than an entire audio work.

Claim 39 (Original) A method according to Claim 33, wherein the audio work comprises a song.

Claim 40 (Original) A method according to Claim 33, further comprising the step of the recognition processor, in response to the recognition signal, transmitting at least a portion of the at least one template stored in said recognition processor memory to the local processor for verification.

Claim 41 (Original) A method according to Claim 33, wherein said recognition processor mathematically correlates the audio signal features transmitted from said local processor with the at least one of the audio templates stored in said recognition processor memory.

Claim 42 (Currently Amended) A method for a hand-held device to capture audio signals to be transmitted from a network computer to a recognition site, the recognition site having a processor which receives extracted feature signals

that correspond to the captured audio signals and compares them to a plurality of stored ~~song~~ audio information, each of the plurality of stored audio information corresponding to substantially an entire audio work, the method comprising the steps of:

receiving analog audio signals with a microphone;

A/D converting the received analog audio signals to digital audio signals, the digital audio signals corresponding to a portion of a recorded audio work that is less than the entire recorded audio work;

extracting spectrally distinct feature signals from the digital audio signals with a signal processor;

storing the extracted feature signals in a memory;

and

transmitting the stored extracted feature signals to the network computer through a terminal.

Claim 43 (Currently Amended) A method according to Claim 42, wherein the step of A/D converting includes further ~~comprising~~ the step of anti-alias filtering the received analog audio signals.

Claim 44 (Original) A method according to Claim 42, wherein said memory comprises a flash memory.

Claim 45 (Original) A method according to Claim 42, wherein said signal processor extracts a time series of signals corresponding to energy in a plurality of different frequency bands of the digital audio signals.

Claim 46 (Original) A method according to Claim 42, wherein said signal processor compresses the extracted feature signals, and wherein said memory stores the compressed signals.

Claim 47 (Original) A method according to Claim 42, wherein said hand-held device comprises a cellular telephone.

Claim 48 (Original) A method according to Claim 42, wherein said hand-held device comprises a personal digital assistant.

Claim 49 (Original) A method according to Claim 42, wherein said hand-held device comprises a radio receiver.

Claim 50 (Currently Amended) A local processor method in an audio signal recognition system having a hand-held device and a recognition server, the hand-held device capturing audio signals and downloading them to the local processor, the captured audio signals corresponding to a portion of a recorded audio work that is less than the entire audio work, the recognition server (i) receiving from the local processor extracted feature signals that correspond to the captured audio signals and (ii) comparing received extracted feature signals to a plurality of stored audio song information, each of the plurality of stored audio information corresponding to substantially an entire recorded audio work, the method comprising the steps of:

receiving the captured audio signals from the hand-held device through an interface, the received audio signals

corresponding to the portion of a recorded audio work that is less than the entire audio work;

forming extracted feature signals corresponding to the received ~~captured~~ audio signals with a processor, the extracted feature signals corresponding to different frequency bands of the captured audio signals;

storing the extracted feature signals in a memory;
and

causing the stored extracted feature signals to be sent to the recognition server.

Claim 51 (Original) A method according to Claim 50, further comprising the step of playing back to a user at the local processor, a verification signal received from the recognition server, the verification signal corresponding to the captured audio signal.

Claim 52 (Cancelled)

Claim 53 (Original) A method according to Claim 50, wherein the local processor sends the extracted feature signals to the recognition server over the Internet.

Claim 54. (Currently Amended) A recognition server method in an audio signal recognition system having a hand-held

device and a local processor, the hand-held device capturing audio signals and transmitting to the local processor signals which correspond to the captured audio signals, the local processor transmitting extracted feature signals to the recognition server, the method comprising the steps of:

receiving the extracted feature signals from the local server through an interface, the received extracted feature signals corresponding to a portion of a recorded audio work that is less than an entire recorded audio work;

storing a plurality of feature signal sets in a memory, each set corresponding to an entire recorded audio work; and

with processing circuitry (i) receiving an input audio stream and ~~separates~~ separating the received audio stream into a plurality of different frequency bands; (ii) forming a plurality of feature time series waveforms which correspond to spectrally distinct portions of the received input audio stream; (iii) storing in the memory the plurality of feature signal sets which correspond to the feature time series waveforms, (iv) comparing the received feature signals, which correspond to the portion of a recorded audio work that is less than the entire audio work, with the stored feature signal sets, each of which corresponds to an entire audio work; and (v) providing a recognition signal when the received feature signals match at least one of the stored feature signal sets.

Claim 55 (Currently Amended) A method according to Claim 54, wherein said processing circuitry also (i) forms multiple feature streams from the plurality of feature time series waveforms; (ii) forms overlapping time intervals of the multiple feature streams; (iii) estimates the distinctiveness of each feature in each time interval; (iv) rank-orders the features according to their distinctiveness; (v) transforms the feature time series to obtain the complex spectra; and (vi) ~~(viii)~~ stores the feature complex spectra in the memory as the feature signal sets.

Claim 56 (Cancelled)

Claim 57 (Original) A method according to Claim 54, wherein said interface is coupled to the Internet.

Claim 58 (Currently Amended) A method according to Claim 54, wherein said ~~processor~~ processing circuitry forwards to the local processor, verification audio signals which correspond to the matched at least one stored feature signal sets.

Claim 59 (Currently Amended) A method according to Claim 54, wherein said ~~processor~~ processing circuitry forwards

to the local processor, signals which correspond to the matched at least one stored feature signal sets.

Claim 60 (Currently Amended) Computer readable storage media storing code which causes one or more processors to carry out a method for recognizing an input audio data stream, the code causing the one or more processors to perform the steps of:

receiving the input data stream with a hand held device;

with the hand held device, randomly selecting any one portion of the received audio data stream, the selected portion being less than an entire recorded audio work;

forming a first plurality of feature time series waveforms corresponding to spectrally distinct portions of the selected portion ~~received data stream;~~

transmitting to a recognition site the first plurality of feature time series waveforms;

storing a second plurality of feature time series waveforms at the recognition site, each of the second plurality of time series waveforms corresponding to substantially an entire recorded audio work;

at the recognition site, correlating the first plurality of feature time series waveforms with the second plurality of feature time series waveforms; and

designating a recognition when a correlation probability value between the first plurality of feature time series waveforms and one of the second plurality of feature time series waveforms reaches a predetermined value.

Claim 61 (Currently Amended) Computer readable storage media storing code which causes one or more processors to carry out a method for recognizing free-field audio signals, the code causing the one or more processors to perform the steps of:

capturing free-field audio signals with a hand-held device having a microphone;

transmitting signals corresponding to the captured free-field audio signals to a local processor, the transmitted signals corresponding to a portion of a recorded audio work that is less than an entire recorded audio work;

transmitting from the local processor to a recognition site, audio signal features which correspond to the signals transmitted from the hand-held device, the transmitted audio signal features corresponding to the portion of a recorded audio work that is less than an entire recorded audio work;

at least one of the hand-held device and the local processor extracting a time series of spectrally distinct audio signal features from the captured free-field audio signals;

storing data corresponding to a plurality of audio templates in a memory at the recognition site, each of the audio templates corresponding to substantially an entire recorded audio work;

correlating the audio signal features transmitted from the local processor with at least one of the audio templates stored in the recognition site memory, using a recognition processor; and

providing a recognition signal based on the correlation.

Claim 62 (Original) Computer readable storage media according to Claim 61, wherein said code includes code for causing the one or more processors to perform the steps of:

analog-to-digital converting the captured free-field audio signals; and

extracting the time series of spectrally distinct audio signal features from the captured free-field audio signals.

Claim 63 (Original) Computer readable storage media according to Claim 61, wherein said code includes code for causing the said local processor to extract the time series of spectrally distinct audio signal features from the captured free-field audio signals.

Claim 64 (Original) Computer readable storage media according to Claim 61, wherein said local processor comprises a personal computer coupled to the Internet.

Claims 65-66 (Cancelled)

Claim 67 (Original) Computer readable storage media according to Claim 61, wherein the audio work comprises a song.

Claim 68 (Original) Computer readable storage media according to Claim 61, further comprising code for causing the recognition processor, in response to the recognition signal, to transmit at least a portion of the at least one template stored in said recognition processor memory to the local processor for verification.

Claim 69 (Original) Computer readable storage media according to Claim 61, further comprising code for causing said recognition processor to mathematically correlate the audio signal features transmitted from said local processor with the at least one of the audio templates stored in said recognition processor memory.

Claim 70 (Currently Amended) Computer readable storage media storing code which causes a hand-held device to capture audio signals to be transmitted from a network computer to a recognition site, the recognition site having a processor which receives extracted feature signals that correspond to the captured audio signals and compares them to a plurality of stored entire recorded audio works ~~song information~~, the code causing the hand-held device to perform the steps of:

receiving analog audio signals with a microphone;

A/D converting the received analog audio signals to digital audio signals;

extracting spectrally distinct feature signals from the digital audio signals with a signal processor, the extracted feature signals corresponding to a portion of a recorded audio work that is less than an entire audio work;

storing the extracted feature signals in a memory;

and

transmitting the stored extracted feature signals to the network computer through a terminal.

Claim 71 (Original) Computer readable storage media according to Claim 70, wherein the code causes said signal processor to extract a time series of signals corresponding to energy in a plurality of different frequency bands of the digital audio signals.

Claim 72 (Original) Computer readable storage media according to Claim 70, wherein said code causes said signal processor to compress the extracted feature signals, and wherein said code causes said memory to store the compressed signals.

Claim 73 (Original) Computer readable storage media according to Claim 70, wherein said hand-held device comprises a cellular telephone.

Claim 74 (Original) Computer readable storage media according to Claim 70, wherein said hand-held device comprises a personal digital assistant.

Claim 75 (Original) Computer readable storage media according to Claim 70, wherein said hand-held device comprises a radio receiver.

Claim 76 (Currently Amended) Computer readable storage media storing code which causes a local processor to transmit extracted feature signals to a recognition server, in an audio signal recognition system having a hand-held device and the recognition server, the hand-held device capturing audio signals and downloading them to the local processor, the

recognition server (i) receiving from the local processor extracted feature signals that correspond to the captured audio signals and (ii) comparing received extracted feature signals to a plurality of stored recorded audio works, each stored recorded audio work comprising an entire recorded audio work ~~song information~~, the code causing the local processor to perform the steps of:

receiving the captured audio signals from the handheld device through an interface;

forming extracted feature signals corresponding to the received captured audio signals with a processor, the extracted feature signals corresponding to different frequency bands of the captured audio signals, the extracted feature signals corresponding to a portion of a recorded audio work that is less than an entire recorded audio work;

storing the extracted feature signals in a memory;
and

causing the stored extracted feature signals to be sent to the recognition server.

Claim 77 (Original) Computer readable storage media according to Claim 76, wherein the code causes the local processor to play back to a user at the local processor, a verification signal received from the recognition server, the verification signal corresponding to the captured audio signal.

Claim 78 (Currently Amended) Computer readable storage media according to Claim 76, wherein said processor forms the extracted feature signal from less than an entire recorded song audio-work.

Claim 79 (Original) Computer readable storage media according to Claim 76, wherein code causes the local processor to send the extracted feature signals to the recognition server over the Internet.

Claim 80 (Currently Amended) Computer readable storage media storing code which causes a recognition server to recognize signals in an audio signal recognition system having a hand-held device and a local processor, the hand-held device capturing audio signals and transmitting to the local processor signals which correspond to the captured audio signals, the local processor transmitting extracted feature signals to the recognition server, the code causing the recognition server to perform the steps of:

receiving the extracted feature signals from the local processor through an interface, the extracted feature signals corresponding to a portion of a recorded audio work that is less than an entire recorded audio work;

storing a plurality of feature signal sets in a memory, each set corresponding to an entire recorded audio work; and

with processing circuitry (i) receiving an input audio stream and separating ~~separates~~ the received audio stream into a plurality of different frequency bands; (ii) forming a plurality of feature time series waveforms which correspond to spectrally distinct portions of the received input audio stream; (iii) storing in the memory the plurality of feature signal sets which correspond to the feature time series waveforms, each of the plurality of feature signal sets corresponding to an entire recorded audio work, (iv) comparing the received extracted feature signals with the stored feature signal sets, and (v) providing a recognition signal when the received extracted feature signals match at least one of the stored feature signal sets.

Claim 81 (Currently Amended) Computer readable storage media according to Claim 80, wherein said code causes said processing circuitry to also (i) form multiple feature streams from the plurality of feature time series waveforms; (ii) form overlapping time intervals of the multiple feature streams; (iii) estimate the distinctiveness of each feature in each time interval; (iv) rank-order the features according to their distinctiveness; (v) transform the feature time series to

obtain the complex spectra; and (vi) ~~(viii)~~ store the feature complex spectra in the memory as the feature signal sets.

Claim 82 (Currently Amended) Computer readable storage media according to Claim 80, wherein said code causes said interface to receive extracted feature signals which comprise less than an entire recorded song ~~audio work~~.

Claim 83 (Original) Computer readable storage media according to Claim 80, wherein said code causes said processor to forward to the local processor, verification audio signals which correspond to the matched at least one stored feature signal sets.

Claims 84-85 (Cancelled)

Claim 86 (Currently Amended) Apparatus for recognizing free-field audio signals, comprising:

a hand-held device having a microphone to capture free-field audio signals;

a local transmitter, integral to said hand-held device, to transmit a signal corresponding to the captured free-field audio signals to a recognition site, the transmitted signal corresponding to a portion of a recorded audio work that is less than an entire recorded audio work;

said local transmitter further comprising an analog-to-digital converter to convert the free-field audio signal to a digital format; and

a recognition processor and a recognition memory at the recognition site, said recognition memory storing data corresponding to a plurality of audio templates, each audio template corresponding to substantially an entire recorded audio work, said recognition processor comparing the signal transmitted from said local transmitter with at least one of the audio templates stored in said recognition processor memory, said recognition processor providing a recognition signal based on the comparison.

Claim 87 (Previously Presented) The apparatus of claim 86 further comprising a local receiver integral to said hand-held device for receipt of said recognition signal.

Claim 88 (Previously Presented) The apparatus of claim 87, wherein said recognition signal is transmitted to said local receiver by a communication protocol selected from the group consisting of frequency division multiple access, time division multiple access, cellular digital packet data, global system for mobile communications, and code division multiple access.

Claim 89 (Previously Presented) The apparatus of claim 87, wherein said local receiver further comprises a display device to display metadata associated with said recognition signal.

Claim 90 (Previously Presented) The apparatus of claim 86 wherein said local transmitter transmits to said recognition site by a communication protocol selected from the group consisting of frequency division multiple access, time division multiple access, cellular digital packet data, global system for mobile communications, and code division multiple access.

Claim 91 (Previously Presented) The apparatus of claim 86, wherein said hand-held device comprises a cellular phone.

Claim 92 (Previously Presented) The apparatus of claim 86, wherein each said audio template corresponds to at least one of a song, advertisement, TV program, and radio program.

Claim 93 (Previously Presented) The apparatus of claim 89, wherein said metadata comprises at least one

selected from the group consisting of song title, album title, author, singer, date of creation, and artist name(s).

Claim 94 (Previously Presented) The apparatus of claim 89, wherein said metadata comprises at least one selected from the group consisting of advertisement ID, advertisement source, advertisement ownership, and advertisement sponsorship.

Claim 95 (Previously Presented) The apparatus according to claim 86, wherein said free-field audio signal corresponds to at least one of a radio broadcast signal of a song, a TV program, an advertisement, and a locally generated audio signal.

Claim 96 (Previously Presented) The apparatus according to claim 86, wherein said free-field audio signal is transmitted over the Internet and said free field audio signal corresponds to at least one of a song, a TV show, a video file, an advertisement, and a movie.

Claim 97 (Currently Amended) The apparatus according to claim 86, further comprising a signal filter arranged to substantially reduce or eliminate ~~background~~ noise from said free-field audio signal.

Claim 98 (Previously Presented) The apparatus according to claim 97, wherein said signal filter is integral to said hand-held device.

Claim 99 (Previously Presented) The apparatus according to claim 97, wherein said signal filter is coupled to said recognition processor.

Claims 100-101 (Cancelled)

Claim 102 (Previously Presented) The apparatus of claim 86, wherein each said audio template uniquely identifies at least one of a song, advertisement, and TV program.

Claim 103 (Previously Presented) The apparatus of claim 86, wherein said recognition memory is a relational database for identification of songs.

Claim 104 (Currently Amended) A method of identifying information associated with an audio signal comprising the steps of:

establishing a connection between a hand-held device and a recognition site;

transmitting a sample signal corresponding to the audio signal over said connection, the sample signal corresponding to a portion of a recorded audio work that is less than an entire recorded audio work;

creating a unique audio template from said sample signal by applying a predetermined algorithm whereby said unique audio template is smaller than said sample signal;

comparing said unique audio template with a plurality of audio signatures stored on said recognition site, said plurality of audio signatures being created by application of said predetermined algorithm to a plurality of predetermined source signals, each of said plurality of audio signatures corresponding to substantially an entire recorded audio work;

determining the identifying information associated with the audio signal based on the comparison of said unique audio template with said plurality of audio signatures; and

transmitting the identifying information to said hand-held device over said connection.

Claim 105 (Previously Presented) The method according to claim 104, wherein said audio signal comprises at least one of a broadcast of a song, a TV program, an advertisement, and a locally generated audio signal.

Claim 106 (Previously Presented) The method according to claim 104, wherein said hand-held device comprises a cellular phone.

Claim 107 (Previously Presented) The method according to claim 106, wherein the step of establishing a connection comprises the step of dialing a phone number associated with said recognition site.

Claim 108 (Previously Presented) The method according to claim 106, wherein the step of transmitting a sample signal further comprises the step of placing the microphone of said cellular phone near a source of said audio signal.

Claim 109 (Previously Presented) The method according to claim 104, wherein said source of said audio signal comprises at least one selected from the group consisting of a radio, a TV, a computer, and a local source.

Claim 110. (Previously Presented) The method according to claim 104, wherein said connection is wireless.

Claim 111. (Previously Presented) The method according to claim 104, wherein said recognition site further

comprises a relational database associated with said plurality of audio signatures.

Claim 112 (Previously Presented) The method according to claim 104, wherein said predetermined algorithm produces a respective code used to uniquely identify each said audio template.

Claim 113 (Previously Presented) The method according to claim 104, wherein said predetermined algorithm produces a respective code used to uniquely identify each said source signal.

Claim 114 (Previously Presented) The method according to claim 104, wherein said predetermined algorithm produces a respective code used to uniquely identify each said source signal and each said audio template.

Claim 115 (Previously Presented) The method according to claim 104, wherein said connection comprises a communication protocol selected from the group consisting of frequency division multiple access, time division multiple access, cellular digital packet data, global system for mobile communications, and code division multiple access.

Claim 116 (Currently Amended) The method according to claim 104, further comprising the step of filtering out ~~background~~ noise associated with said sample signal.

Claim 117 (Currently Amended) The method according to claim 116, wherein the step of filtering out the ~~background~~ noise is performed by software code associated with said hand-held device.

Claim 118 (Currently Amended) The method according to claim 116, wherein the step of filtering out the ~~background~~ noise is performed by software code associated with said recognition site.

Claim 119 (Currently Amended) The method according to claim 116, wherein the step of filtering out the ~~background~~ noise is performed by circuitry associated with said hand-held device.

Claim 120 (Currently Amended) The method according to claim 116, wherein the step of filtering out the ~~background~~ noise is performed by circuitry associated with said recognition site.

Claim 121 (Currently Amended) A hand held device for the transmission of a signal corresponding to a free-field audio signal to a recognition site comprising a recognition processor and a recognition memory, the recognition memory adapted to store data corresponding to a plurality of audio templates where each audio template corresponds to substantially an entire recorded audio work, and the recognition processor adapted to compare the signal to at least one of the audio templates, said hand held device comprising:

a receiving means for receipt of the free-field signal;

an analog to digital converter to convert the free-field audio signal to a digital format, the captured free-field audio signal corresponding to a portion of a recorded audio work that is less than the entire recorded audio work; and,

a transmitter, integral to said hand-held device, to transmit said signal corresponding to the captured free-field audio signals to the recognition site.

Claim 122 (Previously Presented) The hand held device of claim 121, wherein said receiver means is a microphone.

Claim 123 (Previously Presented) The hand held device of claim 121, further comprising a radio receiver for receipt of a signal caused to be generated by the recognition site.

Claim 124 (Previously Presented) The hand held device of claim 123, further comprising a display means for display of a message associated with the signal caused to be generated by the recognition site.

Claim 125 (Previously Presented) The hand held device of claim 124, wherein said display means comprises an LCD.

Claim 126 (Currently Amended) The hand held device of claim 121, further comprising a signal filter adapted to substantially reduce or eliminate ~~background~~ noise from the free-field audio signal.

Claim 127. (Previously Presented) The hand held device of claim 121, wherein transmission of the signal from the hand held device to the recognition site is by a communication protocol selected from the group consisting of frequency division multiple access, time division multiple

access, cellular digital packet data, global system for mobile communications, and code division multiple access.

Claim 128. (Currently Amended) A recognition site adapted to process signals corresponding to free field audio signals transmitted from a hand-held device comprising:

a receiving means for receipt of a signal from the hand-held device, the received signal corresponding to a portion of a recorded audio work that is less than an entire audio work;

a memory means for storing a plurality of audio templates, each audio template corresponding to substantially an entire recorded audio work;

a processing means for comparison of said received signal to at least one audio template; and

a signal generation means for transmission of a signal to the hand held device corresponding to the comparison performed by said processing means.

Claim 129 (Previously Presented) The recognition site of claim 128, wherein said memory means comprises a database containing a sample signal corresponding to a respective song and metadata associated with said song.

Claim 130 (Previously Presented) The recognition site of claim 128, wherein said memory means comprises a database containing a sample signal corresponding to a respective advertisement and metadata associated with said advertisement.

Claim 131 (Previously Presented) The recognition site of claim 128, wherein said memory means comprises a database containing a sample signal corresponding to a respective television program and metadata associated with said television program.

Claim 132 (Previously Presented) The recognition site of claim 129, wherein said metadata comprises at least one of a song title, artist's name, album title, author, singer, and date of creation.

Claim 133 (Previously Presented) The recognition site of claim 130, wherein said metadata comprises at least one of an advertisement ID, source, sponsorship, and ownership.

Claim 134 (Previously Presented) The recognition site of claim 131, wherein said metadata comprises at least one of a television program title, network, channel number,

running time, names of actors, writer, director, producer, and date of creation.

Claim 135 (Previously Presented) The recognition site of claim 128, wherein said processing means comprises a computer executing software code.

Claim 136 (Previously Presented) The recognition site of claim 128, wherein the transmission of the signal to the hand held device is by a communication protocol selected from the group consisting of frequency division multiple access, time division multiple access, cellular digital packet data, global system for mobile communications, and code division multiple access.

Claim 137 (Currently Amended) The recognition site of claim 128 further comprising a signal filter arranged to substantially reduce or eliminate ~~background~~ noise.

Claim 138 (Cancelled)